

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Suekane et al.

Title: Magnetic Recording Medium

Serial No.: 09/895,679

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Docket No.: AK2-C1

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Assistant Commissioner for Patents  
Washington, D.C. 20231

DECLARATION OF DR. CHRISTOPHER H. BAJOREK

I, Christopher H. Bajorek, declare:

1. I am the same Christopher H. Bajorek who submitted a declaration earlier during prosecution of the above-mentioned patent application ("Application").

2. Engineers at Komag, Inc. (the assignee of the Application) have performed experiments in which a magnetic recording medium comprising the following structures was provided:

- a) a substrate 1 (see attached Exhibit A);
- b) an underlayer 2 formed on substrate 1;
- c) a first Co alloy magnetic layer 3 formed on underlayer 2;
- d) a Ru intermediate layer 4 formed on layer 3; and
- e) a second Co alloy magnetic layer 5 formed on intermediate layer 4.

3. During this experiment, Ru intermediate layers with thicknesses of 3, 6, 8, 10 and 12 Å were provided. Hysteresis loops of the resulting structures were obtained. Attached as Exhibit B are hysteresis loops for these structures. Antiferromagnetic coupling is manifested in all of the hysteresis loops of Exhibit B. For example, the

2/3/03 Declaration

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"steps" labeled "S" in the loops for thicknesses of 6, 8, 10 and 12 Å are the result of antiferromagnetic coupling. (An explanation of how antiferromagnetic coupling causes steps S is set forth in paragraphs 7-9 of my earlier declaration.) The bump labeled B for the loop corresponding to 3 Å indicates the onset of antiferromagnetic coupling.

4. Antiferromagnetic coupling is actually a cyclic phenomenon in that if one were to increase the thickness of the Ru layer beyond 12 Å, one would discover that the antiferromagnetic coupling would eventually disappear, but then reappear for substantially thicker Ru films.

5. The attached exhibits show that for Ru thicknesses between 3 and 10 Å thick, antiferromagnetic coupling is inherently present.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

  
Christopher H. Bajorek

February 3, 2003  
Date

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on 2/11/03.

2/11/03  
Date

Christopher H. Bajorek  
Signature

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